STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT BOOK

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 022006-001 Project Number: 2005-11-006

Owner: Holcim (US), Inc.

Owner's Address: 201 Jones Road, Waltham, MA 02451

Installation Name: Holcim (US), Inc.

Installation Address: 14738 Hwy 79, Clarksville, MO 63336

Location Information: Pike County, S13, T53N, R1E

Application for Authority to Construct was made for:

Installation of a new silo, weigh feeder and belt conveyor to allow granulated blast furnace slag processing at a rate of 35 tons per hour. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

☐ Standard Conditions (on reverse) are applicable to this permit.

☑ Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

FEB - 1 2006

EFFECTIVE DATE

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional Office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed Special Conditions as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Holcim (US), Inc.
Pike County, S13, T53N, R1E

1. Baghouse conditions
   A. Holcim (US), Inc. shall control emissions while processing granulated blast furnace slag in the existing equipment (listed below) by operating the existing baghouses at all times the related equipment is in operation.

No.	Unit ID	Emission Unit Description
1.	EP-29	Transfer Point
2.	EP-29.1	Clinker Rod Deck
3.	EP-29.2	Clinker Cone Crusher
4.	EP-30	Conveyor Transport System
5.	EP-34	Cement Mill #1
6.	EP-35	Cement Separator #1
7.	EP-58	Cement Dome Dedusting North
8.	EP-59	Cement Dome Dedusting South
9.	EP-60	Dome Conveyor Belt
10.	EP-39	Shipping Silo Baghouse
11.	EP-40	Shipping Silo Baghouse
12.	EP-41	Shipping Silo Baghouse
13.	EP-42	Shipping Silo Baghouse
14.	EP-43	36" Belt Baghouse
15.	EP-44	60" Belt Baghouse
16.	EP-46	Rail Storage Bins
17.	EP-47.1	Barge Loading Storage Bin
18.	EP-47.2	Barge Loading Storage Bin
19.	EP-48	Barge Loading
20.	EP-49	Barge Loading
21.	EP-48.2	Barge Loading Spouts
22.	EP-49.2	Barge Loading Spouts

   B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. Each baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the DNR employees may easily observe them. Replacement filters for the

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).

C. Holcim (US), Inc. shall monitor and record the operating pressure drop across the baghouses at least once every week. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

D. Holcim (US), Inc. shall maintain an operating and maintenance log for the baghouses which shall include the following:
   1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
   2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

2. Moisture Content Testing Requirement for Inherent Moisture Content of Granulated Blast Furnace Slag

A. Holcim (US) Inc. shall conduct moisture content testing on the granulated blast furnace slag. At a minimum, one sample from each granulated blast furnace slag shipment must be tested.

B. Holcim (US) Inc. shall maintain a written record of the test results. These records shall include a description of the sample, the test date, the product type and the moisture content (weight percent) of the sample.

C. Should more than two consecutive tests show that the moisture content of the granulated blast furnace slag is less than 1.5%, Holcim (US) Inc. shall submit a permit modification for New Source Review.

3. Haul Road Watering – 50% efficiency

Holcim (US) Inc. shall water the existing haul road (EP-52MGB) and vehicular activity area of the storage pile (EP-53.1) whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.

4. Recordkeeping

Holcim (US) Inc. shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2005-11-006
Installation ID Number: 163-0001
Permit Number:

Holcim (US), Inc.
14738 Hwy 79
Clarksville, MO 63336

Complete: November 14, 2005
Reviewed: December 14, 2005

Parent Company:
Holcim (US), Inc.
201 Jones Road
Waltham, MA 02451

Pike County, S13, T53N, R1E

REVIEW SUMMARY

- Holcim (US), Inc. has applied for authority to construct a new silo, weigh feeder and belt conveyor to allow granulated blast furnace slag processing.

- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.

- Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*, of the New Source Performance Standards (NSPS) applies to the new equipment.

- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.

- Inherent moisture content is being used to control the particulate matter less than ten (10) microns in diameter (PM_{10}) emissions from the new equipment and the existing equipment prior to the cement mill #1 that will have increased utilization due to granulated blast furnace slag processing. Baghouses will control PM_{10} emissions from all existing equipment that will have increased utilization. A portion of the existing haul road (EP-52MGB) is already paved. The entire haul road and the storage pile activity area will be watered to control PM_{10} emissions.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM_{10} are below de minimis levels.

- This installation is located in Pike County, an attainment area for all criteria air pollutants.

- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2, No. 3].
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is required for the new equipment, as required by NSPS, Subpart OOO.
- Revision to the Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Holcim (US) Inc. operates a Portland cement manufacturing plant in Clarksville, Missouri. The installation quarries both limestone and shale for use as raw material in the production of Portland cement. The quarried stone is processed through crushers and screens until acceptable dimensions are achieved. The crushed stone is then conveyed to the rotary kiln, along with mineral additives, for the formation of cement clinker.

The installation is an existing major source of all criteria air pollutants. Holcim has received a Part 70 Operating Permit (Permit No. OP2004-002). The following construction permits have been issued to Holcim (US) Inc. from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0478-001	Installation of a silo dust collector
0586-010	Installation of a waste fuel storage tank
0687-008	Modification of fuel firing system for cement kiln
0693-014	Installation of equipment to burn chipped and whole tire derived fuel
0699-009	Temporary permit to burn tire derived fuel in existing equipment
0699-018	Installation of a stacker belt and storage pile for gypsum
0699-010	Temporary permit for the evaluation of oxygen enrichment in the existing kiln
0699-010A	Extension of temporary permit 0699-010
012000-007	Temporary permit for the evaluation of steel furnace slag as raw material feed in the existing kiln
032000-018	Temporary permit for the evaluation of oil filter fluff as supplemental fuel in the existing kiln
012001-011	Utilization of shredded wood and oil filter fluff in existing shredded tire fuel system
112001-011	Utilization of shredded rubber and plastics as supplemental fuel in the existing kiln
012002-002	Temporary permit for the evaluation of soybeans as supplemental fuel in the existing kiln
112001-011A	Correction to Permit No. 112001-011
032004-001	Temporary permit for use of soil containing petroleum-related constituents as supplemental fuel in the existing kiln
022005-013	A new grizzly feeder, primary and secondary crushers and associated conveying equipment

PROJECT DESCRIPTION

Holcim (US), Incorporated proposes to install a new silo, weigh feeder and belt conveyor to allow granulated blast furnace slag processing (GBFS). GBFS is a byproduct of the ironmaking process, resultant from the fusion of impurities contained in the iron ore, together with the addition of fluxes and coke ash. GBFS can replace a portion of clinker in the product cement.

GBFS will be brought to Holcim from off-site and placed in a storage pile. The material is transferred from the storage pile through existing equipment to be initially crushed in the clinker cone crusher, then later processed in cement mill #1. After processing in the cement mill, the product mixture will be stored, and eventually loaded out by rail or barge to the customer.

Apart from the new silo #13, weigh feeder and belt conveyor, no other new equipment is being added. However, existing clinker/cement processing equipment will experience increased utilization from the additional handling of GBFS. The new equipment is rated at 35 tons per hour. The increased utilization of existing equipment was determined to increase by 35 tons per hour, as well.

All existing equipment is controlled by existing baghouses that were afforded a 99% control efficiency. Additionally, the following pieces of equipment were assumed to process GBFS that contains inherent moisture content:

- Clinker reclaim hopper (EP-26),
- Transfer point (EP-29),
- Clinker rod deck (EP-29.1),
- Clinker cone crusher (EP-29.2),
- Conveyor transport system (EP-30),
- Slag silo #13,
- Weigh feeder, and
- Belt conveyor.

The existing haul road (EP-52MGB) is partially paved; the entire road will be watered to prevent visible emissions of PM_{10}.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies for the haul roads, stockpiles and barge loading used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 13.2.2, *Unpaved Roads* (12/2003), Section 13.2.4, *Aggregate Handling and Storage Piles* (01/1995), Section 13.2.5, *Industrial Wind Erosion* (01/1995). GBFS raw material handling emissions were estimated using emission factors found in AP-42's Section 11.19.2, *Crushed Stone Processing and Pulverized Mineral* (08/2004). The emissions from processing of the GBFS and subsequent handling were estimated using emission factors found in AP-42's Section 11.6, *Portland Cement Manufacturing*

(01/1995) and Section 11.12, *Concrete Batching* (10/2001).

Existing potential emissions are major for all criteria pollutants. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)*

Pollutant	Regulatory *De Minimis* Levels	Existing Potential Emissions	Existing Actual Emissions (2004 EIQ)	Potential Emissions of the Application	Application Conditioned Potential
PM_{10}	15.0	Major	167.10	12.90	N/A
SOx	40.0	Major	11,117.91	N/A	N/A
NOx	40.0	Major	6,115.60	N/A	N/A
VOC	40.0	Major	1,691.84	N/A	N/A
CO	100.0	Major	2,549.47	N/A	N/A
HAPs	10.0/25.0	Major	163.24	N/A	N/A

*N/A = Not Applicable

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM_{10} are below de minimis levels.

APPLICABLE REQUIREMENTS

Holcim (US), Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information,* 10 CSR 10-6.110
  The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.

- *Operating Permits*, 10 CSR 10-6.065

- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170

- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220

- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants*, 40 CFR Part 60, Subpart OOO

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Lina Klein
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 31, 2005, received November 2, 2005, designating Holcim (US), Inc. as the owner and operator of the installation.

- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

- Northeast Regional Office Site Survey, dated November 15, 2005.